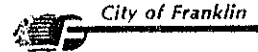


APPENDIX E - SITE STORMWATER MANAGEMENT CHECKLIST

Site Stormwater Management Checklist



Project Name: _____
 Date Submitted: _____
 Project Location : _____
 (general description of nearby streets):
 Watershed Name(s): _____
 (From City's Stormwater Management Plan)
 Subwatershed Name(s): _____
 (From City's Stormwater Management Plan)

| | |
|---|-------|
| Existing area of impervious surface: _____ | Acres |
| Area of impervious surface after project completion: _____ | Acres |
| Difference: _____ | Acres |
| [If difference < 0.5 acres, stop; if difference ≥ 0.5 acres, proceed with checklist.] | |

Water Quantity Design

Existing Conditions

Number of outfalls: _____

| Table 1 - Existing Watershed Characteristics | Watershed Name/Number (Project Specific) | Area [Acres] | Percent Impervious | Hydrologic Soil Group(s) | Runoff Curve Number (RCN) | Time of Concentration (Tc)* [min] | Peak Runoff Flow † | |
|--|---|-----------------|-----------------------|--------------------------------|------------------------------------|---|-----------------------------------|------------------|
| | | | | | | | Q ₂ | Q ₁₀₀ |
| | | | | | | | [cfs] | [cfs] |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | Total Site | | | — | | — | (flows to be added hydraulically) | |
| | Offsite Contribution | | | | | | | |

Proposed Conditions

Number of outfalls: _____

| Table 2 - Proposed Watershed Characteristics | Watershed Name/Number (Project Specific) | Area [Acres] | Percent Impervious | Hydrologic Soil Group(s) | Runoff Curve Number (RCN) | Time of Concentration (Tc)* [min] | Peak Runoff Flow † | |
|--|---|-----------------|-----------------------|--------------------------------|------------------------------------|---|-----------------------------------|------------------|
| | | | | | | | Q ₂ | Q ₁₀₀ |
| | | | | | | | [cfs] | [cfs] |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | Total Site | | | — | | — | (flows to be added hydraulically) | |
| | Offsite Contribution | | | | | | | |

* - Include calculations for Times of Concentration
 † - See Page 4 for rainfall depth, duration, and distribution

Site Stormwater Management Checklist

Project Name: _____

Water Quantity Design (continued)

Summary of On-site detention

| Table 3 - Pond Characteristics | Pond Name/Number | Contributing Watershed Names(s) (from Table 2) | Total Area to Pond [Acres] | Peak Inflow † | |
|--------------------------------|------------------|---|-------------------------------|-------------------------|---------------------------|
| | | | | Q ₂ [cfs] | Q ₁₀₀ [cfs] |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Table 4 - Pond Storage Volume | Pond Name/Number | NWL [Elevation] | Area [Acres] | Top of Pond [Elevation] | Area [Acres] | Storage Volume [Ac-ft] |
|-------------------------------|------------------|--------------------|--------------|----------------------------|--------------|---------------------------|
| | | | | | | |
| | | | | | | |
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| | | | | | | |

| Table 5 - Discharge Characteristics | Pond Name/Number | Discharge Pipe Size and Material | Peak Outflow † | | Peak Elevation | | Maximum Runoff Release Rate ‡ | |
|-------------------------------------|------------------|----------------------------------|-------------------------|---------------------------|-------------------|---------------------|-------------------------------|------------------------|
| | | | Q ₂ [cfs] | Q ₁₀₀ [cfs] | Elev ₂ | Elev ₁₀₀ | 2-year [cfs/acre] | 100-year [cfs/acre] |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |

Describe the characteristics of the downstream stormwater feature for each detention pond.
(I.e. Is the downstream feature a wetland, ditch, storm sewer, etc. Does it have a tailwater elevation that affects the discharge of the pond):

† - See Page 4 for rainfall depth, duration, and distribution

‡ - See Page 4 for Runoff Release Rate Values

Site Stormwater Management Checklist

Project Name: _____

Water Quality Design

| Table 6 - Pond Permanent Pool | Pond Name/Number | Total Area to Pond [Acres] | Permanent Pool [†] | | | | Pool Volume [Ac-ft] | Required Volume [Ac-ft] |
|-------------------------------|------------------|----------------------------|-----------------------------|--------------------------|-------------------|-------------------|---------------------|-------------------------|
| | | | Surface Area [Acres] | Percent of Watershed [%] | Max. Depth [feet] | Avg. Depth [feet] | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| Table 7 - Pond Cells | Forebay [†] | | | | | |
|----------------------|--|--|-------------------------|------------------------------|-----|--------------------------------------|
| | Pond | | Surface Area [Acres] | Percent of Permanent Pool | | Number of Cells Excluding Forebay |
| | Name/Number | Forebay Included | | | [%] | |
| | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |

Pond Configuration[†]

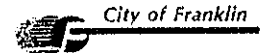
| Table 8 - Pond Configuration | Pond Name/Number | Side Slopes | | | Emergency Spillway | |
|------------------------------|------------------|-------------|--------------|-----------|--------------------|--------------|
| | | Above NWL | Safety Shelf | Below NWL | Invert Elevation | Width [feet] |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Stormwater Management Plan

| Table 9 - Additional Information | <input type="checkbox"/> SWMP Narrative | <input type="checkbox"/> Pond Maintenance Plan |
|----------------------------------|--|---|
| | <input type="checkbox"/> Erosion Control Plan | <input type="checkbox"/> Topographic Map of Surrounding Area |
| | <input type="checkbox"/> Outlet Control Structure Detail | <input type="checkbox"/> Site Drainage Plan (Includes grading plan and plan view of storm sewer system with pipe sizes) |
| | <input type="checkbox"/> Vegetation/Planting Plan | |
| | <input type="checkbox"/> Pond Access Location | <input type="checkbox"/> Interim SWMP |

[†] - See Page 4 for water quality design criteria
[†] - See Page 4 for pond configuration standards

Site Stormwater Management Checklist



†

2-year rain event(50% recurrence): 2.6 inches of rain, 24 hour duration, SCS type II distribution
100-year rain event(1% recurrence): 5.5 inches of rain, 24 hour duration, SCS type II distribution

Q_2 means the peak flow due to the 2-year rain event
 Q_{100} means the peak flow due to the 100-year rain event

†

Maximum Runoff Release Rate according to Milwaukee Metropolitan Sewage District Chapter 13 Surface Water and Stormwater Rule:

| Rain Event | Maximum Release Rate |
|------------|----------------------|
| 2-year | 0.15 cfs/acre |
| 100-year | 0.50 cfs/acre |

†

Water Quality Design Criteria:

- ▶ Permanent Pool Surface Area to be 1.0% of drainage area for residential development, 2.0% of the drainage area for business and institutional development, and 2.5% of drainage area for commercial and manufacturing development
- ▶ Maximum depth of the Permanent Pool ≥ 4 feet
- ▶ Permanent Pool Volume to be equal to or greater than the runoff volume resulting from a 1.5-inch, 4-hour rainfall, with a SCS Type II distribution over the drainage area under post-developed conditions
- ▶ A sediment forebay, located at the pond inlet, is required. It shall be a minimum of 12% of the Permanent Pool Surface Area.

†

Pond Configuration Standards:

- ▶ Side slopes to be a maximum of 4 horizontal to 1 vertical above and below the pond normal water level (with the exception of the safety shelf)
- ▶ A safety shelf is required for all ponds. The shelf shall be located from pond normal water level to one foot below normal water level. The maximum slope shall be 10 horizontal to 1 vertical. The minimum width shall be 10 feet.
- ▶ An emergency spillway is required for all ponds.